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only twenty-one species. Mr. Adolph Hempel has since that time been actively engaged in their study, and as a result he has published a work entitled "As Coccidas Brazileiras," in which he describes no less than 131 species as occurring in Brazil. This work, which was received by the present writer on Sept. 26, 1900, appears in Vol. IV of the *Revista do Museu Paulista*, and is, unfortunately, in Portuguese. By reason of its place of publication and the language in which it is written, it may escape the attention of some coccidologists, but it is in reality one of the most important contributions to the study ever produced.

The new genera described are Cryptokermes, Stigmacoccus, Apiococcus, Tectococcus, Tectopulvinaria, Pseudischnaspis, and Diaspidistis. Stigmacoccus, though placed in the Coccinæ, is doubtless a Monophlebine, and singularly enough, it appears to be identical with Perissopneumon, Newstead, described from India in *Entomologists' Monthly Magazine*, November, 1900. The simultaneous discovery on opposite sides of the world of this striking and distinct type is remarkable. Pseudischnaspis is an offshoot from Chrysomphalus, and will include, besides the Brazilian species, *P. longissimus* (Ckll.) and *P. bowreyi* (Ckll.), hitherto referred to Chrysomphalus.

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**Notes.** — The development of the common tubularian, *Parypha crocea*, has been worked over by C. M. Allen (*Biol. Bull.*, Vol. I, p. 291). Each sporosac is an outgrowth of the body wall of the polyp, and since it shows evidence of four radial canals, it must be regarded as a much reduced medusoid. The genital cells, both male and female, are derived from the ectoderm of the medusoid. The egg grows by absorbing adjacent cells. Its nucleus is said to be absorbed at an early stage and is later re-formed from the scattered fragments. Segmentation is very irregular and is often outrun by the nuclear divisions. The ectoderm and entoderm are differentiated by delamination. The embryo escapes as an actinula with both basal and buccal tentacles.

The segmentation of that portion of the neural tube which forms the brain in teleosts has been studied by Charles Hill (*Zool. Jahrb.*, Bd. XIII). The region destined for the forebrain is represented by three segments, that for the midbrain by two. These segments early disappear and are replaced by secondary expansions which have been mistaken for segments. The segments of these two portions of the brain are serially homologous with those of the posterior part which are six in number and persist to a much later stage in ontogeny. Of these the first gives rise to the cerebellum, and the remaining five to the medulla. The brain thus consists of eleven neural segments.

As a suggestion of what might be done, the work of T. B. Pieri (*Arch. Zool.*, Exp. III, p. xxix) is interesting. Having shaken the sperm of sea-urchins in a bottle of water for one-quarter of an hour, he found the sperms apparently dead. When passed through a filter the liquid, water and sperm, was added to sea-urchin eggs and these developed into many-celled stages. The author would fain see here the action of a soluble ferment which he would call ovulase; this truly would be "féconde en consequences biologiques et philosophiques." However, he sees clearly that the experiments fail in that the filtration did not remove the sperms and that some of the sperms may not have been killed.

The free-swimming copepods of the Woods Holl region have been described in the *United States Fish Commission Bulletin* for 1899 by Professor W. M. Wheeler. The paper contains accounts of thirty species, several of which are new, as well as excellent tables for the identification of these crustaceans.

The peripheral distribution of the cranial and first two spinal nerves of the salamander, *Spelerpes bilineatus*, has been worked out by Miss M. A. Bowers. The paper, which is published in Vol. XXXVI of the *Proceedings of the American Academy of Arts and Sciences*, is illustrated by four figures in which the nerve components are brought out by appropriate colors.

*Special Bulletin No. 4* from the United States National Museum consists of a monograph of the American hydroids belonging to the family Plumularidæ by Professor C. C. Nutting. The memoir includes a general account of the group and descriptions of some 120 species, nearly half of which are new to science. It is illustrated by thirty-four plates, containing over 300 figures.

The peculiar trematode, *Macraspis elegans* Olsson, has been studied recently by Jägerskiöld (*Kgl. Vet.-Akad.*, pp. 197–214, Stockholm, 1899). Good illustrations give the form, which varies greatly as between old and young individuals. The entire structure, especially that of the reproductive system, shows such similarity with that of the digenetic trematodes that the author is not inclined to separate the Aspidobothridæ so widely from them as has been the custom hitherto.

A new genus of ectoparasitic trematode, *Aporocotyle simplex*, has been discovered by Odhner (*Centralb. Bakt. u. Par.*, 1. Abt., Bd. XXVII, p. 62) on the gills of Pleuronectes. It stands in sharp contrast with all forms of the group hitherto described, in that it lacks entirely the suckers and all other specialized apparatus for attachment so characteristic of the group.

The endoparasitic trematodes of Chelonia are treated by Braun in two articles (*Centralb. Bakt. u. Par.*, 1. Abt., Bd. XXV, p. 714, and Bd. XXVI, p. 627). A considerable number of species, both old and new, are carefully described. Among the latter is an American form, *Monostoma renicapitate*, which has not been noted since the original scanty description of Leidy.

The species of Filaria found in human blood are discussed by Von Linstow (*Zool. Anz.*, Bd. XXIII, p. 76). The characteristics of each supposed species are given in full, with citations from some rather inaccessible authorities. The distribution of each is also considered.

Mr. Willis S. Blatchley's *Twenty-fourth Report of the Geological Survey of Indiana* contains, besides important geological and mining matter, a number of valuable papers on the local natural history. E. B. Williamson contributes a descriptive catalogue of the Dragonflies; R. E. Call, an illustrated catalogue of the Mollusca, and Stanley Coulter a catalogue of flowering plants and ferns. Mr. Blatchley continues his useful notes on the reptiles and batrachians of Vigo County.

## BOTANY.

**Two Recent Mushroom Books.** — The last half decade has been notable for the number of new mushroom books and papers, and even more for the increase in fungus-eating in this country. Up to the time that the late Mr. Gibson turned his happy faculty of pen and pencil to the subject, most people had held a vague but fixed idea that none but the expert mycologist could turn mycophagist at large without the probability being great that his friends would ultimately record in sadness the final result of some last experimental eating of a species "supposed to be" wholesome, — only Morels, "the" Mushroom, and a few others grossly marked being safe for the layman's consumption. By his clear descriptions and exquisite